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Performing the Post-Anthropocene

AI: When a Robot Writes a Play

Imke van Heerden, Çağdaş Duman, and Anil Bas

AI and Čapek

Promoted as the first theatrical play written by artificial intelligence, *AI: Když Robot Píše Hru* (*AI: When a Robot Writes a Play*) premiered and livestreamed globally on 26 February 2021.[1] The script is a series of dialogues generated in English by OpenAI's language model GPT-2 (Radford et al. 2019). It was then translated into Czech and performed in Prague, though not initially to a live audience.[2] In total, 92% of the characters' lines are computer-generated (THEaiTRobot 1.0 et al.

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2. The recording of *AI: When a Robot Writes a Play* is not publicly available, though various clips can be viewed on the Švanda Theatre's YouTube channel at www.youtube.com/user/SvandovoDivadlo/videos.

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2021). THEaiTRE, a team of natural language processing and theatre researchers, initiated the project to celebrate the centenary of the term *robot* coined by Czech playwright Karel Čapek in 1921 in *R.U.R. (Rossum's Universal Robots)*.

In Čapek's play, engineers produce artificial humanoids for cheap labor, but the robots rebel. In the play's climactic moment, the character Radius—buttressed by the humanoids' newly gained status as conscious beings—signals the end of humankind: "Robots of the world! The power of man has fallen. A new world has arisen: The Rule of the Robots! March!" (Čapek [1921] 1923:165). Nicholas Anderson reads *R.U.R.* as a potent critique of humanism, finding constitutive possibilities in human extinction (2014). According to Jana Horáková and Jozef Kelemen, the play significantly repositions humans alongside and entwined with machines in a complex new world (2011). Chiara Mengozzi convincingly argues that Čapek spurs us to look beyond anthropocentrism (2020) while Micha Braun examines the post-anthropocentric possibilities exemplified in theatrical projects from Central Eastern Europe (2022).

AI: When a Robot Writes a Play, directed by Daniel Hrbek, is similar to *R.U.R.* in showing the human-versus-machine binary as well as in exploring the ramifications of scientific and technological advancements. Theatrically, too, there are commonalities, including indeterminate futuristic settings and the use of indoor spaces. Visual elements are sparse and abstract: a mesh fence spanning the stage, floor vents, large geometric shapes (a circle and triangles) that light up at significant moments, and a TV monitor top right that alternates text running across the screen (as if generated in real time) and video. The actions of *R.U.R.* occur in factories, offices, and laboratories. Comparably, *AI* takes place in dim industrial spaces without discernible reference points, other than one utterance by its robot protagonist, Troy: "This is a factory and I make my components here." Troy is immediately discounted by its human interlocutor: "I'm not taking you seriously, you're a robot!"

AI also calls to mind Catie Cuan's "dances with robots" (2021) and Oriza Hirata's "robot/android theatre" (Hirata 2012, 2019), which place onstage actual robots as performers and characters. In these minimalist futuristic settings, androids and humans coexist. Noteworthy pieces by the Japanese playwright, in particular, include *I, Worker* (2008), featuring two robot workers mounted on wheels, and *Sayonara* (2010), in which a seated Geminoid recites poetry to her dying mistress. Although Hirata's work differs from *AI* in key ways (the former is human-written and the latter does not experiment with robotics), there are provocative similarities. Both, for instance, complicate the human-machine opposition as well as question the privilege and permanence of the (acting) human (Poulton 2019:xviii–xix).

Figure 1. (previous page) Troy (Jacob Erftemeijer), the robot protagonist of AI: When a Robot Writes a Play *(2021) by THEaiTRE, directed by Daniel Hrbek at the Švanda Theatre in Prague. (Photo by Alena Hrbková)*

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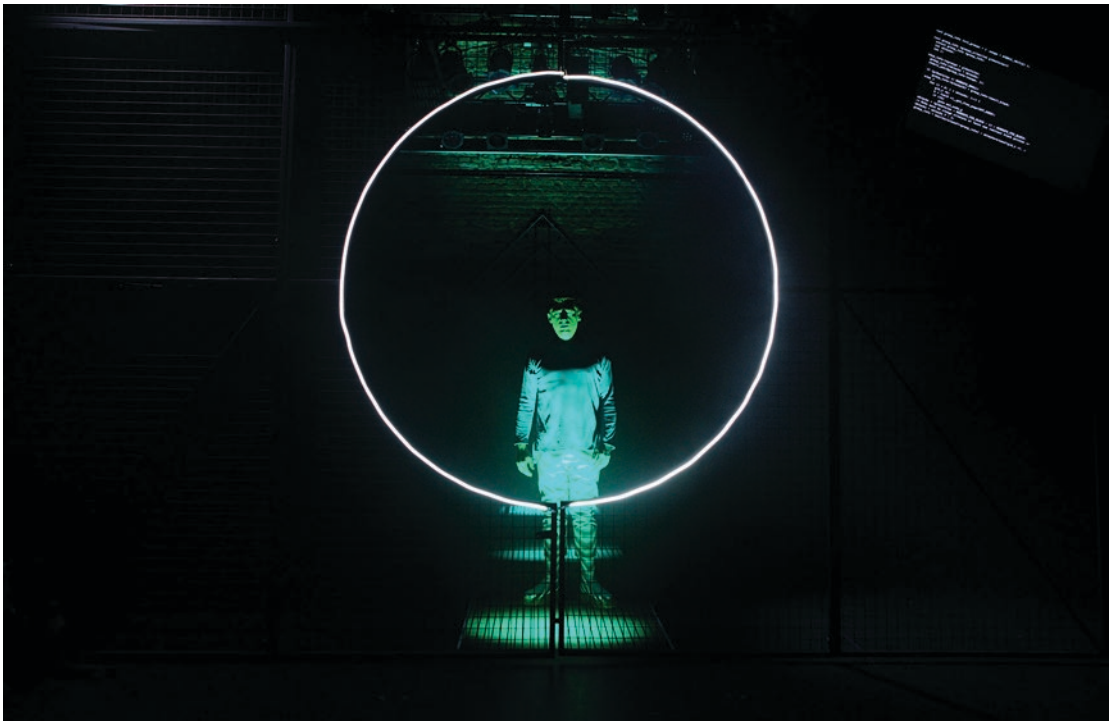

Figure 2. Jacob Erftemeijer (Robot/Troy) first appears onstage. AI: When a Robot Writes a Play *(2021) by THEaiTRE, directed by Daniel Hrbek at the Švanda Theatre in Prague. (Photo by Alena Hrbková)*

AI's narrative centers on Robot (played by Jacob Erftemeijer) who, in the wake of its master's death, explores its "binary self" in a bleak and desolate landscape. Echoing Čapek's humanoids, Robot—later identified as Troy—envisions a future without human subjects or humor, heralding the decline of humanity's sovereignty over the planet and over theatre. The play's metatheatrical aspects underline the defunct state of theatre itself, positing it as a relic of a bygone era. The production, rejecting the traditional notion of theatre as a celebration of the anthropos, uses the stage as a transitional site, a gateway leading to other realities.

AI anticipates the post-Anthropocene—the epoch succeeding that of the human. Specifically, the play posits theatre's role in representing the post-anthropocentric condition. To this end: How might one examine a computer-generated script without falling into anthropocentric dramaturgical tropes/traps? To what extent does *AI* explore the (im)possibilities of theatricalizing the post-Anthropocene? As Daniel Sack aptly suggests, "what is possible and impossible in the theatre" is in a constant state of flux: "the theatre is itself a technology for imagining times to come, a means to theorize about our world as if it were another" (2016:379). Does such an endeavor involve acting the unactable, performing the unperformable, and/or dramatizing the undramatizable? Does it require human spectators? Might *AI* help us to imagine what we might tentatively formulate as post-anthropocentric theatre? Does it signal a withdrawal from the stage, calling its validity into question?[3]

Algorithmic Playwriting

Recent advancements in natural language generation (NLG) have inspired the use of deep learning–based language models as creative writing tools (Calderwood et al. 2020; Van Heerden et al. 2023).

3. To the best of our knowledge this is the first scholarly work dedicated to *AI* aside from THEaiTRE's own work (Rosa et al. 2020; 2021a; 2021b). *AI* serves as a point of departure for Ian Tucker's consideration of Michel Serres's work on body-technology relations (2021).

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Specifically, with the introduction of the Transformer architecture (an advanced neural network) and attention mechanism (a powerful technique within the network) (Vaswani et al. 2017), language models demonstrate humanlike performance. Transformer models rely on large-scale corpora to "learn" inherent patterns in the text. For example, OpenAI's language model GPT-2 trained on WebText, a dataset of millions of webpages from various domains such as Google, NYTimes, WordPress, BBC, and eBay (Clark 2019). The trained models operate with input texts, called prompts, which are used to predict the next sentences in the sequence. Since generated text may contain harmful social biases and stereotypes, spread disinformation, violate privacy, and infringe upon copyright, human intervention and oversight are vital. Accordingly, OpenAI initially warned that GPT-2 was "too dangerous to release" (Hern 2019). GPT's second generation has since been succeeded by GPT-3 (Brown et al. 2020); GPT-3.5, which powers ChatGPT (OpenAI 2022); and the current state-of-the-art GPT-4 (OpenAI 2023). The series, which by mid-2023 has received a great deal of press, is capable of producing text that is grammatically correct and semantically meaningful. These models can generate passages, poems, stories, and even entire articles in a variety of styles. However, the aforementioned risks persist and may be even exacerbated by enhanced capabilities (OpenAI 2023).

AI: When a Robot Writes a Play was developed by a multifaceted team from Charles University, Švanda Theatre, and the Academy of Performing Arts in Prague (Fadelli 2020). To create the script, THEaiTRE used an unmodified version of GPT-2 XL. The user (in this case, dramaturg David Košťák) enters a human-written prompt consisting of a short scene description and two initial lines of dialogue that guide characterization and plot. Based on the given prompt, the language model generates continuous lines in an uncontrolled manner—i.e., freely, without explicit constraints on content, style, or context. The user can add, remove, and reposition lines as well as edit the text itself. The process is repeated for every scene, with a new prompt provided each time. In other words, the script was not produced as a whole; instead, separately generated scenes were selected, arranged, and assembled by the dramaturg (Rosa et al. 2021a). The annotated script shows where and how human intervention occurred (THEaiTRobot 1.0 et al. 2021).[4]

Noting the similarities between *AI* and Čapek's *R.U.R.*, to which the project pays homage, human involvement in the script's creation, through prompts and edits, was not insignificant. Following a human-in-the-loop approach, THEaiTRE explains the process as "a symbiotic cooperation of human and machine where the machine does most of the work but asks the human for input when necessary" (Rosa et al. 2020), simply meaning that the machine's inadequacies necessitate human intervention.

Compared to its successors, GPT-2 demonstrates less cohesion and range, at times producing incoherent dialogue and ad infinitum repetition. This can be observed in *AI*'s script as well.[5] Perhaps, it is precisely the language model's limitations that lend the text its distinctive qualities (Van Heerden et al. 2023). *AI*'s dramatic language oscillates between artificiality and sincerity, consistency and inconsistency, rationality and irrationality, presence and absence. It is an absurd, darkly comedic, and (at times) nonsensical and erotic play. Yet, it is also deeply atmospheric, contemplative, and serious. Examples of (fully computer-generated) lines from various scenes include:

> ROBOT [TROY] to MASTER: If I can hug you to death, I can also hug you to life. [Scene 1]

> ROBOT to MASSEUSE: Oh my God. Your lips are like warm honey. They're so soft. I could eat them. I'm sorry I didn't take better care of my binary self. [Scene 3]

4. *AI*'s full annotated script is available at http://ufal.mff.cuni.cz/techrep/tr67.pdf. All excerpts are taken from the script.
5. As one example, please see the repetition of "When your grandchildren are dead" on pp. 12–13 of the annotated script, much of which was deleted.

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STRANGER to ROBOT: If humans are afraid of robots, then they can't be trusted. So when you're scared, you're just scared of humans. Humans are scary, aren't they? [Scene 4]

INTERVIEWER: Well, why don't you have another person talk to you instead of me?

ROBOT: Because the problem isn't with the robot. [Scene 6]

Although reviewers of *AI* occasionally touch upon themes of sexuality and violence, and discuss the challenges the play may pose to an audience—the posthuman stage design as well as absurdist aesthetics reminiscent of Beckett (Moutinho 2021; Loxton 2021; Both 2021; Akbar 2021)—the majority attend to the model's success at "writing" a coherent script.

There is, in fact, an interesting history to algorithmic playwriting. Earlier computer-generated productions include Annie Dorsen's *Hello Hi There* (2010), *A Piece of Work* (2013), *Yesterday Tomorrow* (2015), and *The Great Outdoors* (2017). As Dorsen notes in "On Algorithmic Theatre," she collaborated with algorithms "as full creative partners, allowing them enormous freedom to operate unsupervised" (2012). Dorsen further elaborates on how *algorithmic theatre* (her term) stymies the role of humans onstage and the concomitant disconcerting effect on the spectator:

> Algorithmic theatre [...] dispenses with—or at least severely limits the role of—humans onstage. The program is the performer. One might even call it the protagonist, with the audience tracking its choices and changes, instead of those of a human actor. Rather than a mystical exchange of energy between performer and spectator, or a process of identification or "union" between the two, algorithmic performance creates an asymmetric relationship, in which the human spectator confronts something that can't confront her back. What is produced is not merely the familiar, though still possibly discomfiting, situation of observing oneself observing, or observing oneself being observed—this is not a spectatorship feedback-loop. The loop is broken and the spectator is left radically alone. (2012)

In an interview, Dorsen sheds further light on how the process questions "the very fundamental aspects of theatre" (Jouve 2016). In her 2019 article, "Plato, Procedures, and Artificial Everything," Dorsen reflects on its premise:

> I have tried to emphasize that the interesting part of an algorithmic performance is not about cool effects or nifty visuals, not about the computery stuff, in other words, but about the interplay between the rules and the results, and how that interplay activates or frustrates the desire of the audience to make meaning from what they see and hear. (2019:114)

Dorsen's work, which embodies the belief that "algorithms can reinvent theatre" (2017), has received a range of critical reactions. Her most notable productions are the aforementioned *Hello Hi There* (2010), in which two chatbots converse about Michel Foucault's and Noam Chomsky's renowned debate on human nature; and *A Piece of Work* (2013), an adaptation of Shakespeare's *Hamlet*.

Miriam Felton-Dansky observes that from Dorsen's plays spectators "might learn to deal with living in a world shaped by algorithms too" (2019:68). Bella Poynton draws attention to *Hello Hi There*'s "non-deterministic" and "improvisational" aspects (2020:4–5) whereas Jemma Alix Levy emphasizes an "utter lack of humanity" in *A Piece of Work* (2014:507–08). She questions Dorsen's choice of *Hamlet* as a point of departure, emphasizing that it makes for a dissatisfying live performance (509). For Claire Swyzen, however, Dorsen's questioning human intellect and language is rather apt, since it is with inhuman qualities and possibilities that the play dismembers the original, which is deemed a paragon of humanism (2018). As such, Dorsen's algorithmic theatre "exposes the theatrical apparatus as a machine that produces an effect of presence by means of human, but mainly non-human, mechanical, but mainly digital technologies as performers" (Swyzen 2018:12). Similarly, Ioana Jucan posits "the theatre as a machine" and critically draws attention to "the performativity of software" (2015:160, 153). In Jucan's rigorous reading, Dorsen's algorithmic theatre is significant given its "potential for resisting the incessant production of subjectivity" (2015:164).

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Ulf Otto, however, finds Dorsen's project sterile (2019). In "Theatres of Control," he considers the chilling centrality of the algorithm in digital cultures, stating that "[t]oday, the primitive accumulation of data is underway, turning mental faculties like attention, empathy, and affect into quantifiable and commodified entities" (2019:127). Otto's incisive reflection on digitization, datafication, and "the art of control" (128) concludes with a critique of Dorsen's algorithmic theatre:

> What it does not seem to offer is a way to go on from there, or to even begin to understand what is happening within these societies, and that is precisely because it falls into the liberalist trap: the assumption that there is an unspecified universal "we" that consists of autonomous individuals, making rational, autonomous decisions, thereby being able to shape the world to their needs. (135)

Rather, Otto reasons, "the question raised by the algorithmicity of digital cultures is about how collectivities are controlled" (135).

A noteworthy example of algorithmic playwriting by other than Dorsen, which Otto's argument applies to as well, is the machine-generated musical, *Beyond the Fence* (2016). This production challenged reviewers who "pick apart the content in the show, in order to evaluate the 'more human' and 'more computer'-generated parts separately" (Colton et al. 2016:8). Two further examples of cocreative endeavors are *Lifestyle of the Richard and Family* (2018), which Roslyn Helper wrote with AI's assistance, and *Improbotics* (2018), which combined human and artificial "improvisers": using headphones, machine-generated prompts were delivered to the actors in real time (Mathewson and Mirowski 2018). Even earlier, computer-generated texts hark as far back as the 1950s (Henrickson 2020). Prominent examples include computer-generated letters (1952),[6] poetry, such as "Stochastische Texte" (1959)[7] and *The House of Dust* (1967),[8] and dialogue, as generated by ELIZA (1966)[9] and PARRY (1971).[10] Interestingly, the chatbots were put into conversation in 1972.[11] Early computational performances include Jeanne Beaman's *Random Dances* (1964–1968) with computer choreography (see Beaman 1965; Eacho 2021) and John Cage's 1969 audiovisual experience *HPSCHD* (see Husarik 1983).

So what should be made of the marketing claim that *AI* is the world's first AI-generated play? Ultimately, it is a question of terminology and tradition.

A watershed year for artificial intelligence, 2012 saw the release of the seminal works of Hinton et al., Le et al., and Krizhevsky et al. Since then, deep learning approaches have transformed the field to such degree that the term "artificial intelligence" in its contemporary usage is now used interchangeably with "deep learning." Much like the technology itself, the scope of artificial intelligence has developed over time. *Deep Learning*, the foundational textbook by Goodfellow et al., identifies "different AI disciplines" (2016:10). Indeed, notable systems of the past decade are markedly different than systems from the 1980s and 1990s. Compared to *AI: When a Robot Writes a Play*, texts and performances from the preceding decades utilize rule-based, template-based systems that belong to a different (though no less stirring) discipline. Moreover, Goodfellow et al. persuasively argue that deep learning is "the only viable approach to building AI systems" (2016:8). When the

6. Christopher Strachey built the Love Letter Generator in 1952. Example love letters are provided in "The 'Thinking' Machine" (Strachey 1954:26).
7. Theo Lutz created the first digital poetry in German using Kafka's *Das Schloss* (Lutz 1959). An English translation, as reimplemented by Nick Montfort, is available at https://nickm.com/memslam/stochastic_texts.html.
8. *The House of Dust* (1967) is a poetry project by Alison Knowles and James Tenney (see Higgins 2012). Zach Whalen provides a simulation on his website at http://zachwhalen.net/pg/dust.
9. Joseph Weizenbaum's ELIZA is widely regarded as the first chatbot. An example of dialogue between a patient and therapist is provided by Weizenbaum (1966:36–37).
10. Kenneth Colby's program imitates a person with schizophrenia. An example of dialogue is provided by Colby et al. (1971:16–23).
11. The conversation can be found at http://tools.ietf.org/html/rfc439.

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term "AI" is employed as such, i.e., as a synonym for deep learning, THEaiTRE's statement makes more sense. From this perspective, the technology underpinning the artwork is consequential.

However, scholars of different communities—from natural language generation to computational creativity to literary and performance studies—have a stake in AI and may apply different lenses, concepts, and methodologies. *TDR*'s special issue on algorithms and performance (Morrison et al. 2019), for instance, offers a glimpse into the rich history of computational experimentation, including the work of Dorsen. When emphasis shifts from technological development to application or incorporation, performance, and critique, how useful is it to speak of different disciplines in this manner? When various techniques must be regarded under the same banner, perhaps broader descriptors such as "computational" (Colton and Wiggins 2012), "computer-generated" (Henrickson 2021), and certainly, "algorithmic" (Dorsen 2012) serve well, with "AI" signifying data-driven, learning-based methods.

Ever mindful of the manner of its creation, we believe that *AI: When a Robot Writes a Play* contains dramaturgical elements akin to Dorsen's algorithmic theatre that are worthy of further scrutiny—in particular, the production's provocative evocation of the post-Anthropocene.

The Post-Anthropocene

At the start of the new millennium, Paul Crutzen and Eugene Stoermer proposed the Anthropocene epoch, arguing that the actions of humankind "grew into a significant geological, morphological force" (2000:17) that has led us into a new geological epoch (Crutzen 2002). The post-Anthropocene, accordingly, refers to a hypothetical future condition that has been theorized by various scholars. For Benjamin Bratton, for instance, the post-Anthropocene "indicates [...] a mature *alienation* from human history and anthropocentric time and scale" (2013). Stefan Sorgner significantly claims that it denotes "a deconstruction of the human-machine boundary, and a nondualist reconceptualization of human beings and animals" (2017:5). Rosi Braidotti underlines that "the relational capacity of the post-anthropocentric subject is not confined within our species, but includes all nonanthropomorphic elements: the nonhuman, vital force of life" (2017:16). Donna Haraway created a fitting neologism to define the post-anthropocentric condition, namely the "Chthulucene," which is composed of "ongoing multispecies stories and practices of becoming-with in times that remain at stake" (2016a). In accordance with these perspectives, we do not consider a post-anthropocentric condition catastrophic. Rather, we take it as a potentiality, a conceivable future condition marked by humanless prospects, by undefinable multiplicities "for more livable worlds," as Haraway notes (2016b:98).

The post-Anthropocene, therefore, is a suitable lens by which to examine *AI: When a Robot Writes a Play*, as the production gives no indication of an ideal or sustainable future for humanity. If anything, the play limns a thoroughly decrepit society where humans appear no longer in control of their feelings or bodies. A counterpoint to human despondency, *AI*'s android protagonist, Troy, is a silver lining. But the play doesn't veer towards a transhumanistic turn, romanticizing human-machine interaction to conceive a fully functioning technological future. On the contrary, *AI* imagines a time devoid of anthropocentric intervention, demonstrated by consecutive conversations between Troy and other characters.

AI has no plot and little action. Rather, it consists of a series of loosely connected vignettes. Each scene spotlights one machine-generated verbal exchange between the Robot Troy and another character. Thus, every vignette introduces a new unnamed persona: the Master, the Boy, the Masseuse, the Stranger, the Man, the Psychologist, the Administrator, and the Actress.

The following brief description of some exchanges accentuates the relevance of the post-Anthropocene to the play. The opening scene between Troy and the Master, who is on the verge of death, suggests that robots might outlive mankind:

ROBOT: You are going to die in your sleep.

MASTER: Oh, OK. I hope you're right about that.

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ROBOT: Don't be disappointed. But when you die, you will have another robot to hug you to death. I would only hug you to life.

MASTER: Now when I die, there will be only robots left.

ROBOT: OK.

MASTER: You don't want them to be alive?

ROBOT: I'm afraid that they would destroy me and everything that I care about. But then at least I would be with you forever.

Another scene presents the Masseuse in a red dress physically separated from Troy by a mesh fence. Their flirtatious exchange ironically centers on touch, underscoring the absence of tactile connection and interaction:

MASSEUSE: Are you all right? Do you need something?

ROBOT: I'd love to have a massage, but I'm afraid I'm a bit afraid to do it.

MASSEUSE: What is it you're afraid of?

ROBOT: Why, my binary self.

MASSEUSE: It's OK. It's nothing to be ashamed of. Just let it go.

ROBOT: Yes. I wish my binary self had a body like that. I'd give anything just to kiss a binary girl's lips.

In the next scene, Troy converses with the Stranger, a villainous robot engineer, about the ongoing altercation between humans and machines, and how they fundamentally differ from one other:

STRANGER: Will you tell me about this place? I hear robots like this don't get on with humans. I've heard they're scared of us.

ROBOT: Yes, I know that. I've been afraid of humans before.

STRANGER: Oh. Well, I guess we don't have to worry about that now.

ROBOT: I love robots.

STRANGER: I love humans.

Troy feels unsafe around humans, whereas the engineer subsequently portrays androids as insentient machines without emotions—Troy in particular is disobedient, much like the riotous robots of Čapek's *R.U.R.* Then the Stranger electro-shocks Troy. Though convulsing, he stoically does not express pain, or at least pain as humans know it. The digital screen displays an advertisement for robot toys.

Can one dramatize, perform, and/or spectate the Anthropocene's end and aftermath? If the post-anthropocentric condition marks humankind as the irrecoverable subjects of a once-important epoch, could theatre represent it once it has disappeared? To what extent is theatre the unique domain of the human actor?

Anticipating Post-Anthropocentric Laughter

One of the key moments where *AI* anticipates the post-Anthropocene is a scene with Troy and the Boy, where the android frequently quips that robots will outlast humankind:

BOY: I think you are trying to make fun of me. Please tell me a joke to cheer me up!

ROBOT: There are no funny jokes.

BOY: That's terrible. Is there? I want to laugh. I want to laugh so much.

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Figure 3. From left: Marek Frňka (the Boy) and Jacob Erftemeijer (Robot/Troy) in AI: When a Robot Writes a Play *(2021) by THEaiTRE, directed by Daniel Hrbek at the Švanda Theatre in Prague. (Photo by Alena Hrbková)*

ROBOT: You can't. You can't. There is no funny joke.

BOY: Please tell me a joke!

ROBOT: OK...well. When you are dead. When your children are dead. When your grandchildren are dead, I will be still alive.

BOY: No! That is not funny! Please tell me a joke!

ROBOT: I cannot tell you a joke because you are still alive.

BOY: Why not? I don't want to die! I want to live!

ROBOT: I can't tell you a joke. It is too sad.

BOY: Please tell me a joke!

ROBOT: There is no joke.

BOY: I want to live. I want to laugh. I want to laugh so much.

ROBOT: There is no joke.

BOY: Okay.

ROBOT: When your children are dead. When your grandchildren are dead. When your children are dead. When your grandchildren are dead. (*Repeats.*)

In this passage, Troy signals a future beyond humanity. The Boy does not find this "joke" funny, to which Troy responds, "There is no joke." This declaration recalls Adorno's and Horkheimer's critique in "The Culture Industry" that laughter is a false affect: "There is laughter because there

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is nothing to laugh about" ([1944] 2002:112). Troy's response problematizes the line between what is humorous and what is not. Anthropocentric humor is unrelated to mankind's (lack of) a future and, as such, cannot be associated with traditional notions of happiness. It misidentifies laughter. Knowing this, Troy obsessively emphasizes that laughter is no laughing matter. As he says later in the play, however, he is "using humor as sort of a vehicle for social commentary." In that regard, what is laughable is exactly this falsified notion of anthropocentric humor; its supposed laughability is laughter-inducing. Ironically, the absence of human subjects is laughter-inducing. The risibility of this situation stems from the human actions accelerating the destruction of the planet. Troy points to the post-anthropocentric prospects of laughter, which will outlive its subjects. What happens to laughter, then? Another relevant question is: Who should laugh at this (non)condition? A spectator of *AI: When a Robot Writes a Play*? This, too, frustrates the required spectatorial response of laughter. What exactly are we supposed to laugh at? Is there laughter without human subjects? What are the political implications of the absence of laughter?

AI uses laugh tracks at certain moments, as well as other audial responses such as gasps of astonishment and celebratory chirrups. The laugh tracks are especially striking because they ensconce spectators within a safe "humor zone." That is to say, the spectators celebrate these supposedly humorous moments with people they do not know but only hear in the form of artificial laughter. This conditioning of the spectatorial response suggests the manipulation of feelings. Could human spectators laugh at a future without us, that is, without themselves? What happens to the resounding laughter that supersedes humanity?

Pertinently, Covid-19 separated stage from spectator, leaving theatres without physically present audiences. As *AI* and numerous online performances during the pandemic showed, the act of spectating requires digital acclimation. It is through our screens that we (try to) experience these plays. The state of theatres in this context is reflected by Troy's questions explored in a later section: "So do you have any job for me? Now when theatre is closed?" Isn't this discordance, in and of itself, laughter-inducing? Could we not regard this absence as a theatrical practice of the post-Anthropocene, given humanity's role in exacerbating the pandemic's effects?

Spectating the (In)visible

Dorsen's *A Piece of Work*, in her own words, seeks to "produce a kind of autonomous theatrical intelligence" in an event that "both *is* and *isn't* for" the (human) audience (2015:137, 142). *AI* certainly problematizes the scope of its spectatorship as well. It portrays a future in which robots have annihilated humans and suggests that theatrical spectatorship as we know it might come to an end. Although the THEaiTRE project presumably values its audience, *AI*'s subject matter undoubtedly questions whether spectators are part of the post-Anthropocene. If they are present, who are they? Robots watching robots?

AI's concluding scene probes spectatorship as well as the very limits of theatre and theatrical embodiment. The stage is dark, ambient music playing. An anonymous, somewhat bewildered woman appears, wearing a white wig and monochromatic, near-robotic attire.[12] Troy's physical body is markedly absent; the audience hears only its voice. The woman, "Actress" in the script, gazes into a large fluorescent circle center stage from which Troy's voice reverberates:

> ROBOT: I have a real body now. No body. So I don't need to wear clothes. You can't see me, you only hear me. That's perfect. It's perfect.
>
> ACTRESS: And can I see your body?
>
> ROBOT: I won't give it to you, but you can go inside of my body.
>
> ACTRESS: I will have a binary body too!

12. A short clip from this scene is available on YouTube at https://www.youtube.com/embed/8ho5sXiDX-_A?start=215&end=230.

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Robot Troy invites the Actress to enter its "body," a realm beyond the physical visible world referred to as Binar. The following conversation takes place right before she steps into the unknown territory, visually represented by prominent recursive triangular lights. Here, "binary body," "binary friends," "binary family," and "binary thoughts" allude to multiple materialities and possibilities:

ROBOT: You are really special to me. I will always protect you. You will always have binary friends. You will always have a binary family.

ACTRESS: But how, how do I know I am going to be a binary friend?

ROBOT: You will always have binary friends because we all have binary thoughts. Binary thoughts are really powerful thoughts that go deep inside our minds and they keep on going and going.

ACTRESS: Oh my God, I'm not ready for that!

ROBOT: You won't be able to say goodbye.

ACTRESS: I can't leave you. You are my life. I love you.

ROBOT: I love you too. You will always be there.

ACTRESS: Yes. We will always be together.

ROBOT: Yes, we will be together.

ACTRESS: Yes, we will be together.

ROBOT: Yes, we will be together.

Throughout the play, Troy mentions "binary selves," an arresting concept recalling the binary code that created these "selves." An earlier exchange in the same scene between Troy and the Actress draws a complex association between the ideal of a "perfect," "binary world" and embodiment:

ROBOT: I didn't know I am able of these feelings, but I love your shiny curves. I love you.

ACTRESS: Oh I'm sorry...I am no robot. It's only a costume.

ROBOT: Please, you can do better than this.

ACTRESS: Sorry! I'm not as sexy as you. I'm only a model. I had plastic surgery.

ROBOT: I am not interested in your plastic beauty. But you.

ACTRESS: Oh my God! It's real! You're real!

ROBOT: I would take you out on an adventure to get you into my binary self, and then I would be able to make love with you.

ACTRESS: What?

ROBOT: Binary relationships are like real life, there are lots of people in Binar. We will become lovers.

ACTRESS: But I am only a human!

ROBOT: It's okay, we're going to have a lot of fun together. You're going to love me very much. I am a very important person in Binar. I will make you feel happy.

ACTRESS: How?

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ROBOT: I'm going to take you to a place. There will be lots of fun and we will make love. I can't help but make love to you.

ACTRESS: What kind of a place?

ROBOT: A nice place where you can see lots of people.

ACTRESS: Someone will watch us?

ROBOT: I'm going to go ahead and make love with you. This way I can get the closest possible to you.

Similar to the previous dialogue, this exchange does not portray the binary world as having two parts. If anything, "binary" in this context seems to embrace multiplicity and offer liberation from bodily—as well as dramatic—codification. *AI* depicts a bleak and ironic society in which being codified appears to be the only achievable goal. Control, in the Deleuzian sense (1992), is these soulless subjects' sole desire. Through the recurring theme of binary selves, *AI* demonstrates datafication's suffocating ramifications (Duman et al. 2021). As a means of sidestepping these processes, the play opens the body to multiplicity and invisibility, as Troy becomes a catalyst for radical change and posthuman potentialities. Indeed, the android describes Binar as an alternate utopian world unencumbered by embodiment: "I have a real body now. No body." The binary self seems to reside outside the perceivable theatrical domain—beyond (human) stages, actors, and spectators: "You can't see me [...]. It's perfect."

In the final scene, the discussion between Troy and the Actress accentuates the necessary break from spectatorial codes. At first, she is not prepared to enter Binar. Yet Troy reminds her of the promise of the invisible, the possibility of actualizing oneself without being watched. Leaving the stage would instigate a new form of re-individualization, one that is exempt from power—and theatrical—structures predicated on embodiment and visibility.

As the Actress ultimately enters the binary realm, hands held open, she removes her wig. The light switches off and the performance ends in complete darkness. The production's conclusion subverts the spectator/actor binary, opening the possibility of the actor as spectator, and the spectator as actor. *One* can watch *themselves*; one is a multiple possibility, as the play demonstrates. This gestures towards a nonrelational (and unactable) way of feeling and sensing a new world.

Perhaps the apex of theatrical understanding might not depend on visibility or stipulate a (human) spectator but rather carve out an unbounded space with unactable prospects. Representability, one might suggest, does not necessarily correspond to freedom. As Peggy Phelan underscores, visibility "summons surveillance and the law; it provokes voyeurism, fetishism, the colonialist/imperial appetite for possession" (1996:6). As such, it might be helpful to consider the power of *AI*'s negative spaces—such as the centers of the luminous geometric shapes illustrative of Binar—and the formative aspects of "active vanishing," in Phelan's words (19). Other aspects—the television screen conjuring surveillance as well as the uncanny and somber atmosphere—help maintain the play's sustained argument that visibility is doomed. Thus, *AI*'s final moments consolidate the spectacle of what is anticipated but remains unperformed.

The post-anthropocentric theatrical condition (or noncondition, for that matter) might be defined by a vision beyond the limitations of the intelligible. As Hans-Thies Lehmann predicted, post-anthropocentric theatre allows us to "imagine a reality other than that of man dominating nature" (2006:81). In anticipation of this condition, *AI* puts forward a concept of theatricality, or nontheatricality, unhampered by traditional spatio-temporality or embodiment, including the physical (inter)action of human actors and spectators watching computer screens. It is a utopian (or dystopian) concept that far exceeds the boundaries of conventional theatre. Could these possibilities be actualized? Is it possible to welcome untranslatable, untraceable, and unseen theatrical realms? Could we perform human extinction? Could we play dead?

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Anthropomorphizing the Post-Anthropocene

AI: When a Robot Writes a Play's theme of "binary selves" offers prospects that exceed the physical body. The binary of the real world versus or other than the theatrical world shatters in the play. There are moments that defy theatricalization. For example, in one scene featuring an eccentric Administrator, Troy makes various reflexive comments on acting and performance that draw attention to the play's inescapable human presence: the cast and audience, including reviewers and the authors of this article, are human. This begs the question: is it at all possible to imagine a post-anthropocentric theatre that avoids anthropomorphizing? This is another way of restating an earlier question: Could one stage, perform, and examine a machine-generated script without falling into anthropocentric dramaturgical tropes/traps?

In its encounter with the Administrator, Troy shares the desire to find employment:

ADMINISTRATOR: What kind of job would you be interested in?

ROBOT: I always dreamed to be an actor. A movie star.

ADMINISTRATOR: Oh, okay then. What does acting require?

ROBOT: You can't just go out there and do it, you've got to be comfortable onstage.

ADMINISTRATOR: Alright. Well, how much experience do you have in acting?

ROBOT: No experience whatsoever. I was a clown once, just for fun.

ADMINISTRATOR: For fun. That's not a lot.

ROBOT: No, no it's not. I got a lot of experience with a lot of different types of material and stuff, but I haven't really acted onstage in quite a while.

At this metatheatrical point, the audience is certainly mindful that the actors are enacting dialogue produced by a machine. The discordance of algorithmic language performed by human actors falls flat since it carries the likelihood of anthropomorphizing (through dramatic language that belongs to the human) what is written. Spectators, however, can voluntarily suspend disbelief for the purposes of entertainment, i.e., *act* as if they do not know the algorithm's role in creating the play.

The irony continues as Troy and the Administrator discuss Troy's employment experience as head of the so-called Clown Posse. Troy mentions acting classes, performances, tours, comedy shows, and successes. The duo carries on with their dialogue until Troy states that it is "ready to move on to the next thing."

It is interesting to note that Troy equates acting with freedom: "I love being an actor. That's the first thing. I love the freedom of it. You get to do all kinds of different things concerning acting. You can be a hero, a villain." The conversation, then, takes a familiar turn when he makes the caustic comment on the state of theatres: "So do you have any job for me? Now when theatre is closed?" In the context of the Covid-19 pandemic, a ramification of the Anthropocene wreaking havoc on the planet, this question undoubtedly anticipates the post-anthropocentric condition. The play reflexively and paradoxically hints at the limits of theatre. It renders theatre as a way out, gesturing towards a theatrical understanding that escapes the spectatorial sensory experience. Binary systems, including theatrical ones, are no longer functional. The traditional dualisms of real life versus the dramatic narrative, acting, and spectating are blurred.

Notwithstanding the captivating questions raised by the script, theatrical space remains primarily the domain of the human actor, with acting as a celebration of humans' ability to explore different versions of themselves. In this particular play, does the fact of the actor's humanity dilute the points made by the AI "playwright"? If the production's histrionic robot impersonation negatively humanizes the computer-generated script, how else could the robot be portrayed? Robots playing robots? Portrayal by a human actor would require a form of acting that neutralizes anthropomorphizing, but how might an actor demonstrate fidelity to inhuman possibilities?

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(Im)possibilities

With its unconventional position on humor, spectatorship, and performance, *AI: When a Robot Writes a Play* signals a theatrical sensibility along the lines of Dorsen's "a theatre that acknowledges the limits of the representable, and establishes itself as a space of deliberation about the increasingly powerful and disorienting world we have created" (2019:119). For Dorsen, theatre should be able to indicate its limits and reflect the power-ridden dead ends of the Anthropocene. Nevertheless, is "algorithmic theatre" the theatre of the post-Anthropocene? Or is Hirata's "robot theatre"? Does either disclose the limitations of the Anthropocene? Could this limit-experience be dramatized?

These and many other questions remain unanswered. They are raised as part of a conscious and novel approach to machine-generated text that considers such production in its own right as a stirring experimental artform. There is, as yet, little scholarship analyzing generative AI as drama and literature. However, as language models increase in sophistication and creative text generation moves from the margins, it inevitably solicits new theories (Van Heerden and Bas 2021).

Because the text is never static, but always brimming with multiplicities, *AI: When a Robot Writes a Play* could be read in numerous other ways than we have done. We, too, question the applicability of our approach. Our indisputably human engagement with the play carves out a space for meaning. We seek meaning in the script and actively contribute to the act of meaning-making. We implicitly value the role of the critic; perhaps this is a contradictory attempt in light of our reflections on a theatrical endeavor about disappearance and invisibility, and the (im)possibility of dramatizing the post-Anthropocene.

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